SEQUENCE LISTING

<110> KIKKOMAN CORPORATION

<120> LUCIFERASE AND A METHOD FOR DETECTING INTRACELLULAR ATP USING THE SAME

<130> P98-0634

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<151> 1997-12-26

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Hart draft draft draft.

<170> PatentIn Ver. 2.0

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acc ggt gtc gat tat acg tac gcc gaa tac Thr Gly Val Asp Tyr Thr Tyr Ala Glu Tyr 50 55	tta gaa aaa tca tgc tgt Leu Glu Lys Ser Cys Cys 60	192
cta gga gag gct tta aag aat tat ggt ttg Leu Gly Glu Ala Leu Lys Asn Tyr Gly Leu 65	g gtt gtt gat gga aga att u Val Val Asp Gly Arg Ile 75 80	240
gcg tta tgc agt gaa aac tgt gaa gaa tt Ala Leu Cys Ser Glu Asn Cys Glu Glu Ph 85	c ttt att cct gta tta gcc e Phe Ile Pro Val Leu Ala 0 95	288
ggt tta ttt ata ggt gtc ggt gtg gct co Gly Leu Phe Ile Gly Val Gly Val Ala Pr 100 105	ca act aat gag att tac act ro Thr Asn Glu Ile Tyr Thr 110	336
cta cgt gaa ttg gtt cac agt tta ggc a Leu Arg Glu Leu Val His Ser Leu Gly I 115 120	tc tct aag cca aca att gta le Ser Lys Pro Thr Ile Val 125	384

ttt agt tot aaa aaa gga tta gat aaa gtt ala act gta can ass see	432
Phe Ser Ser Lys Lys Gly Leu Asp Lys Val Ile Thr Val Gln Lys Thr	
130 135 140	
and at at	480
gta act gct att aaa acc att gtt ata ttg gac agc aaa gtg gat tat	100
Val Thr Ala Ile Lys Thr Ile Val Ile Leu Asp Ser Lys Val Asp Tyr 155 160	
145 150 155	
and act cca caa	528
aga ggt tat caa tcc atg gac aac ttt att aaa aaa aac act cca caa	
Arg Gly Tyr Gln Ser Met Asp Asn Phe Ile Lys Lys Asn Thr Pro Gln 175	
165 170	
and general sections of the section	576
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Gln Val Ala Leu Ile Met Asn Ser Ser Gly Ser Thr Gly Leu Pro Lys	
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Gly Val Gln Leu Thr His Glu Asn Leu Val Thr Arg Phe Ser His Ala	
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aga gat cca att tat gga aac caa gtt tca cca ggc acg gct att tta	720
Arg Asp Pro Ile Tyr Gly Asn Gln Val Ser Pro Gly Thr Ala Ile Lei	1
$\frac{235}{240}$)
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act gta gta cca ttc cat cat ggt ttt ggt atg ttt act act tta gg	c 768

Thr Val Val Pro Phe His His Gly Phe Gly Met Phe Thr Thr Leu Gly 255

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tat Tvr	Leu	Thr	Cys	Gly	Phe	Arg	lle	Val	Met	Leu	Thr	Lys	Phe	Asp	Glu	
1 1 1	Do.	•	260					265					270			

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Clu	Thr	Phe	Leu	Lys	Thr	Leu	Gln	Asp	Tyr	Lys	Cys	Ser	Ser	Val	lle	
Ulu	1111	275					280					285				

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Leu	Val	Pro	Thr	Leu	Phe	Ala	lle	Leu	Asn	Arg	Ser	Glu	Leu	Leu	Asp	
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aaa	tai	gaı	lla	ıca			V - 1	C1	Ilo	Δ1а	Ser	Glv	Glv	Ala	Pro	
Lys	Tyr	Asp	Leu	Ser	Asn	Leu	vaı	GIU	116		001	01,			Pro 320	
305					310					315					J2U	

tta	tct	aaa	gaa	att	ggt	gaa	gct	gtt	gct	aga	cgt	ttt	aat	tta	0.08	1008
Leu	Ser	Lys	Glu	He	Gly	Glu	Ala	Val	Ala	Arg	Arg	Phe	Asn	Leu	Pro	
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Clv	Val	Arg	Gln	Gly	Tyr	Gly	Leu	Thr	Glu	Thr	Thr	Ser	Ala	lle	lle	
Uly	141	*** 6	340	·				345					350			

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Pro Leu Phe Lys Ala Lys Val Ile Asp Leu Asp Thr Lys Lys Thr Leu	
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Gly Pro Asn Arg Arg Gly Glu Val Cys Val Lys Gly Pro Met Leu Met	
385 390 395 400	
Late get gag	1248
aaa ggt tat gta gat aat cca gaa gca aca aga gaa atc ata gat gaa	1240
Lys Gly Tyr Val Asp Asn Pro Glu Ala Thr Arg Glu Ile Ile Asp Glu 415	
405 410 415	
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gaa ggt tgg ttg cac aca gga gat att ggg tat tac gat gaa gaa aaa Glu Gly Trp Leu His Thr Gly Asp Ile Gly Tyr Tyr Asp Glu Glu Lys	
Glu Gly Trp Leu HIS IIII GIY ASP 110 017 420 425 430	
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cat ttc ttt atc gtg gat cgt ttg aag tct tta atc aaa tac aaa gga	1344
His Phe Phe Ile Val Asp Arg Leu Lys Ser Leu Ile Lys Tyr Lys Gly	
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Tyr Gln Val Pro Pro Ala Glu Leu Glu Ser Val Leu Leu Gln His Pro	
450 455 460	
the set of a got gat	1440
aat att ttt gat gcc ggc gtt gct ggc gtt cca gat cct ata gct ggt	
Asn Ile Phe Asp Ala Gly Val Ala Gly Val Pro Asp Pro Ile Ala Gly	
465 470 475 480	

gag ctt ccg gga gct gtt gtt gta ctt aag aaa gga aaa tct atg act 1488 Glu Leu Pro Gly Ala Val Val Leu Lys Lys Gly Lys Ser Met Thr 495 490 485 gaa aaa gaa gta atg gat tac gtt gct agt caa gtt tca aat gca aaa 1536 Glu Lys Glu Val Met Asp Tyr Val Ala Ser Gln Val Ser Asn Ala Lys 510 505 500 cgt ttg cgt ggt ggt gtc cgt ttt gtg gac gaa gta cct aaa ggt ctc 1584 Arg Leu Arg Gly Gly Val Arg Phe Val Asp Glu Val Pro Lys Gly Leu 525 520 515 act ggt aaa att gac ggt aaa gca att aga gaa ata ctg aag aaa cca 1632 Thr Gly Lys lle Asp Gly Lys Ala Ile Arg Glu Ile Leu Lys Lys Pro 540 535 530 1644 gtt gct aag atg Val Ala Lys Met 545 <210> 4 <211> 548 <212> PRT <213> Luciola lateralis <400> 4 Met Glu Asn Met Glu Asn Asp Glu Asn Ile Val Tyr Gly Pro Glu Pro 15

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Gly Leu Phe Ile Gly Val Gly Val Ala Pro Thr Asn Glu Ile Tyr Thr 100 105 110

Leu Arg Glu Leu Val His Ser Leu Gly Ile Ser Lys Pro Thr Ile Val 115 120 125

Phe Ser Ser Lys Lys Gly Leu Asp Lys Val Ile Thr Val Gln Lys Thr 130 135 140

Val Thr Ala Ile Lys Thr Ile Val Ile Leu Asp Ser Lys Val Asp Tyr 145 150 155 160

Arg Gly Tyr Gln Ser Met Asp Asn Phe Ile Lys Lys Asn Thr Pro Gln

Gly Phe Lys Gly Ser Ser Phe Lys Thr Val Glu Val Asn Arg Lys Glu
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Thr Val Val Pro Phe His His Gly Phe Gly Met Phe Thr Thr Leu Gly 245 250 255

Tyr Leu Thr Cys Gly Phe Arg Ile Val Met Leu Thr Lys Phe Asp Glu 260 265 270

Glu Thr Phe Leu Lys Thr Leu Gln Asp Tyr Lys Cys Ser Ser Val Ile 275 280 285

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Lys Tyr Asp Leu Ser Asn Leu Val Glu Ile Ala Ser Gly Gly Ala Pro 305 310 315 320 Leu Ser Lys Glu Ile Gly Glu Ala Val Ala Arg Arg Phe Asn Leu Pro 325 330 335

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Pro Leu Phe Lys Ala Lys Val Ile Asp Leu Asp Thr Lys Lys Thr Leu 370 375 380

Gly Pro Asn Arg Arg Gly Glu Val Cys Val Lys Gly Pro Met Leu Met 385 390 395 400

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His Phe Phe Ile Val Asp Arg Leu Lys Ser Leu Ile Lys Tyr Lys Gly
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Tyr Gln Val Pro Pro Ala Glu Leu Glu Ser Val Leu Leu Gln His Pro 450 455 460

Asn lle Phe Asp Ala Gly Val Ala Gly Val Pro Asp Pro Ile Ala Gly 465

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Ala	Leu	Cys	Ser	Glu	Asn	Cys	Glu	Glu	Phe	Phe	He	Pro	Val	Leu	Ala	
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Gly	Leu	Phe	lle	Gly	Val	Gly	Val	Ala	Pro	Thr	Asn	Glu	Пе	Tyr	Thr	
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cta	cgt	gaa	ttg	gtt	cac	agt	tta	ggc	atc	tct	aag	cca	aca	att	gta	384
Leu	Arg	Glu	Leu	Val	His	Ser	Leu	Gly	Ile	Ser	Lys	Pro	Thr	He	Val	
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ttt agt	tct	aaa	aaa	gga	tta	gat	aaa	gt	t a	ta	act	gta	a C	aa	aaa	ac	g	432
Phe Sei	Ser	Lys	Lys	Gly	Leu	Asp	Lys	Va	1 I	l e		Va	1 G	l n	Lys	11	ır	
130)				135						140							
														·			. +	480
gta ac	t gct	att	aaa	acc	att	gtt	ata	ı tt	g g	gac	agc	aa	ag	gtg	gaı	. T	a l	400
Val Th	r Ala	lle	Lys	Thr	He	Val	116	e Le	eu A	Asp	Ser	Ly	s V	/al	ASI) I	yr co	
145				150					1	155						1	60	
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aga gg	st ta	t caa	a tco	c atg	gao	aac	: tt	t a	tt :	aaa	aaa	1 aa	ic i	acı The	Dr	a C	laa	020
Arg G	у Ту	r Gli	n Sei	r Met	Ası	Ası	n Ph			Lys	Ly	s As	SII	1 111	17	5	1111	
			16	5				1	70						11	5		
								~	+ o	an n	αt	t a	aс	cgo	aa	ıa 1	gaa	576
ggt t	tc aa	a gg	a tc	a agi	t tt	t aa	a ac	ci g	la	Cli	. gi	1 A	en.	Arg	, L.	/s	Glu	
Gly P	he Ly			r Se	r Ph	е Гу			a ı	UIL	1 γα	.1 11		190	,)			
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caa g				٠ <u>.</u> +	~ 00	c to	• t - t -	റെ (og t	t.c:	a ao	CC F	ggt	t t	g C	ca	aaa	624
caa g Gln V	tt g	ct ci	t a	la al	y aa	n Se	or S	os a er (Glv	Se	r Tl	ır (Gly	Le	u P	ro	Lys	
Gln \			eu i	re me	i As		00		,	-		6	205					
	1	95				2,	30											
ı	gtg C	00 C	tt a	ct ca	at g	aa a	at a	.tc	gtc	ac	t a	ga	ttt	to	t c	ac	gct	672
ggt	gig C Val G	aa C	ou T	hr H	is G	lu A	sn I	1e	Val	Th	ır A	rg	Phe	Se	er E	lis	Ala	
		IIII D	Cu 1	111 11		15					2	20						
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0.00	gat	- C 2 - 2	itt t	at g	ga a	ac c	aa i	gtt	tca	a c	ca g	ggc	ac	g g	ct a	att	tta	720
aga	Asp 1	Pro 1	11e 7	Tvr G	ly A	sn (Gln '	Val	Sei	r P	ro (Gly	Thi	r A	la	lle	Leu	i
225	ush	. 10			30						35						240)
440																		

act	gta	gt	ta	cca	ttc	cat	cat	ggt	ttt	ggt	atg	ttt	act	act	tta	ggc	768
Thr	Val	Va	al :	Pro	Phe	His	His	Gly	Phe	Gly	Met	Phe	Thr	Thr	Leu	Gly	
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Tyr	Leu	T	hr	Cys	Gly	Phe	Arg	lle	Val	Met	Leu	Thr	Lys	Phe	Asp	Glu	
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Glu	Th	r F	he	Leu	Lys	Thr	Leu	Gln	Asp	Tyr	Lys	Cys	Ser	Ser	Val	lle	
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ct	t gt	a (ccg	act	tte	g ttt	gca	att	ctt	aat	aga	agt	gaa	ı tta	.cto		912
Le	u Va	1 1	Pro	Thi	Lei	ı Phe	e Ala	ılle	e Leu	Asn	Arg			ı Lev	Lei	ı Asp	
	29	0					295	5				300)				
														- ~~		o cct	960
aa	a ta	.t	gat	tt	a tc	a aa	t tt:	a gt	t gaa	ati	gca	a tc	t gg	c gga	ı gc	a cct	300
Ly	s Ty	r	Asp	Le	u Se			u Va	l Glu	1116			r GI	y GI;	у Ат	a Pro 320	
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										٠	+ 0.0	o	+ ++	t aa	t tt	a ccg	1008
t t	a t	ct	aaa	a ga	a at	t gg	t ga	a gc	t gi	l gc	ı ag o Ar	a Ug a Ar	σPh	e As	n Le	u Pro	1008
Le	eu S	er	Ly	s Gl			y GI	u Al	a va			g Ai	g 111	C Mb	33	eu Pro 85	
					32	25				33	U					. •	
							. + ~	·+ ++	9 90	a ua	a an	a ac	c tr	t go	a at	tt att	1056
g	gt g	t t	cg	t ca	ia gg	gc ta	ıı gg	3 L L L	.a at	и <u>в</u> а г (С1	11 Th	r Th	ir Se	er Al	a 1.	tt att le Ile)
. G	ly V	al	Ar			ту Ту	/r 6.	у Б	34		u II	i II.		35			
				34	40				34	J					. -		

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His	Phe	Phe	lle	Val	Asp	Arg	Leu	Lys	Ser	Leu	Ile	Lys	Tyr	Lys	Gly	
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Phe Ser Ser Lys Lys Gly Leu Asp Lys Val Ile Thr Val Gln Lys Thr 130 135 140

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Tyr Leu Thr Cys Gly Phe Arg Ile Val Met Leu Thr Lys Phe Asp Glu 260 265 270

Glu Thr Phe Leu Lys Thr Leu Gln Asp Tyr Lys Cys Ser Ser Val Ile 275 280 285

Leu Val Pro Thr Leu Phe Ala Ile Leu Asn Arg Ser Glu Leu Leu Asp 290 295 300

Lys Tyr Asp Leu Ser Asn Leu Val Glu Ile Ala Ser Gly Gly Ala Pro

305 310 315

Leu Ser Lys Glu Ile Gly Glu Ala Val Ala Arg Arg Phe Asn Leu Pro 325 330 335

Gly Val Arg Gln Gly Tyr Gly Leu Thr Glu Thr Thr Ser Ala Ile Ile 340 345 350

Ile Thr Pro Glu Gly Asp Asp Lys Pro Gly Ala Ser Gly Lys Val Val
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Pro Leu Phe Lys Ala Lys Val Ile Asp Leu Asp Thr Lys Lys Thr Leu 370 375 380

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Lys Gly Tyr Val Asp Asn Pro Glu Ala Thr Arg Glu Ile Ile Asp Glu
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Tyr Gln Val Pro Pro Ala Glu Leu Glu Ser Val Leu Leu Gln His Pro 450 455 460

a Gly Val Ala Gly Val Pro Asp Pro Ile Ala Gly

Asn Ile Phe Asp Ala Gly Val Ala Gly Val Pro Asp Pro Ile Ala Gly
465 470 475 480

Glu Leu Pro Gly Ala Val Val Leu Lys Lys Gly Lys Ser Met Thr
485 490 495

Glu Lys Glu Val Met Asb Tyr Val Ala Ser Gln Val Ser Asn Ala Lys
500 505 510

Arg Leu Arg Gly Gly Val Arg Phe Val Asp Glu Val Pro Lys Gly Leu 515 520 525

Thr Gly Lys Ile Asp Gly Lys A le Arg Glu Ile Leu Lys Lys Pro
530 540

Val Ala Lys Met

545

4... 4... ... 4... 1... 4... 1... 14...